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ORIGINAL LECTURES.

CLINICAL LECTURE

ON A CASE OF ADDISON'S DISEASE.

BY WILLIAM PEPPER, M.D.,

Professor of Clinical Medicine in the University of Pennsylvania.

Reported for the *Philadelphia Medical Times*.

THE case to which I shall direct your attention to-day is that of a sailor, 52 years of age, born in London. Both of his parents are dead: his father died seventeen years ago. The man has been at sea since he was eighteen. Ten years ago, while on a voyage, he had a severe attack of scurvy lasting ten months. He recovered entirely from that attack, but has suffered much of late years from sore throat, in the shape of ulcers on the pharynx. He has never had any venereal disease. On one occasion he had a fall from the rigging of the ship to the deck, which rendered him momentarily senseless and produced a round, indented fracture of the outer table of the skull. During the winters of 1875 and 1876 he was exposed to very severe weather, and was in the habit of going about without a hat. Last winter and spring he complained of constant flatulence and nausea with loss of appetite: he did not, however, give up work entirely until last August. Lately he has suffered from shortness of breath and some palpitation, with occasional spells of vomiting. Only last week he had a severe attack of vomiting, accompanied by a *pulse of 130 and upwards, and the most excessive muscular debility and emaciation. The attack lasted only three or four days, and in that short time he lost fifteen pounds in weight.* It occurred without any warning, and without any irregularity of the bowels. (Strange to say, very soon after the most violent nausea and vomiting, he has the appetite for, and will eat, a hearty meal with but slight indigestion.) His stomach is at times distended, and he feels a load and weight at the epigastrium. Up to the 24th of August last, he says, he usually had a fine, ruddy color; now there is very evident bronzing at certain points on his neck and forehead, and on the backs of his hands. This could not be the effect of the sun, for he has not been outside of the hospital, except for an hour, or so, each day, since August. The discoloration is becoming more and more marked. The gastric symptoms, which have been violent and irregular, are hard to explain upon general principles, for he has never been addicted to the use of articles which could cause indigestion; has never used alcohol, nor tobacco. Again, the symptoms have not at any time been those of chronic disease of the stomach, such as cancer, or ulcer. Careful examination has shown me that there is no obstruction of the pyloric orifice by cancer, and no fibroid thickening there. There is no history of constant lancinating pains, and local tenderness upon pressure, which are among the usual symptoms of cancer, or ulcer of the stomach. There has been no blood mixed with the vomited matters. There is no enlargement of the spleen. There is no jaundice, and no bile in the urine. The stools have always been of the normal color. Apparently therefore there is no hepatic disease. In some diseases of the liver there may be found a dark discoloration of the skin, but in that case the pigment is uniformly deposited over the whole surface of the body, while here it is only found in particular spots. In chronic malarial poisoning the general health is much broken down, there is dyspepsia, slight palpitation, and some deposition of pigment in the skin. Here there has been no malarial history, no enlargement of the spleen nor liver, and examination with the microscope has failed to reveal any pigment circulating in the blood. Moreover, the patient has spent his whole life on the sea, where such a thing as malaria is almost unheard of. The lungs are healthy, and there is no heart disease. The urine has been examined and found normal.

The characteristic, progressive failure of strength; the disposition to faintness and exhaustion; the palpitation and violent, causeless nausea, and vomiting; the steadily increasing deposit of pigment on certain exposed parts of the body; the entire absence of any cardiac, pulmonary, hepatic, splenic, renal, or gastric disease—all stamp indisputably the present case as an instance of that disorder, so rare in America, known as Addison's Disease.

As is well known, this disease is generally

connected with a peculiar lesion of the supra-renal capsules, and has for its most marked external symptom a pronounced bronzing of the skin, which is a quite constant though not an invariable condition. The supra-renal capsules are small, triangularly shaped structures attached to the upper surface of the kidneys, but bearing no relation with them, and only known to us as ductless glands. They consist of an outer layer of yellow cells, or cortical substance (bound in by a strong fibrous capsule), surrounding a triangular space filled with dark-red, pulpy tissue. They have no duct, and no known function to perform in the animal economy. Their supplying arteries and veins are unusually large in calibre, and a very great number of minute nerve-fibres run to them from the solar plexus and semilunar ganglia. They have, in fact, a much richer supply of nerves than the kidneys themselves. There have been numerous hypotheses as to their function, or functions. Some have supposed that, by reason of their immense supply of sympathetic nerve-fibres, they have some vital connection with the sympathetic nervous system, while others have imagined them to be workshops for the elaboration of the red corpuscles, or the pigment of the blood. But when, as in a number of cases in the lower animals, extirpation of them has been effected, no greater change has been noted in the composition of the blood, or in the general health, than might be expected to attend any other such serious operation.

These little bodies may be the seat of tubercular deposits, of malignant disease, and of slow, fatty degeneration. In none of these diseases of the supra-renal bodies do we find the peculiar symptoms of the present case.

Addison's Disease is a chronic inflammation of these ductless glands, which, in the course of the disorder, become enlarged to two or three times their natural size. If cut open in the early stages, we find them a mass of thick, inflammatory growth, bound in by the tough, fibrous capsule. Later, this inflamed tissue passes successively through the stages of fatty and cheesy degeneration. If the disease reach a still more advanced stage before death supervene, a dissection of one of the capsules will lay bare to us a mere fibrous sac, containing a puriform liquid, or withered and puckered, its only contents a few gritty particles, the calcareous results of the cheesy degeneration. Cohnheim has noted, in *Virchow's Archives*, the changes in the marrow of the bones in progressive pernicious anæmia; but as yet no such lesions have been discovered in Addison's Disease, for the simple reason, possibly (for many things seem to point in that direction), that the marrow of the bones has not yet been examined in those who have died of this disease.

The complaint we are considering presents a number of different symptoms. In very few cases do we find all the various symptoms of the disorder combined. Generally, one or more particular sets of symptoms predominate, to the exclusion of the rest. In the present instance, those which we notice most prominently are the violent nausea and vomiting, the gradual, increasing asthenia, the well-marked local bronzing, and the rapid loss of flesh during the acute attacks of gastric disturbance. The English authorities state as the result of their experience that rapid or even noticeable emaciation is a very rare occurrence in the course of the disease. I have no doubt that this is very true in the vast majority of cases; but in this case, and in a previous one which has come within my observation, the very opposite has been found to hold. You have just heard how this man lost fifteen pounds of flesh in the course of three or four days. In the other instance there was steadily progressive emaciation from the first warning of the disease up to the hour of death.

As regards the failure in strength; this is generally the earliest and most characteristic symptom. It may come on very slowly, or so rapidly as to simulate an attack of typhoid fever. When the patient is quiet, he may feel quite strong and well, but the instant he makes any exertion he finds himself faint and as feeble as an infant. Usually, therefore, he shows an entire lack of energy; perfect willingness to lie in bed day after day, and month after month. This extreme muscular debility is most irregular in its growth; the patient is worse and then much better again, well enough to do a little work.

The progressive discoloration of the skin is hard to explain. It is not to be confused with any other deposition of pigment. It is mainly a bronzing of the exposed parts of the body; the neck from the roots of the hair to the line of the collar; the forehead; the backs of the hands and the forearms; the small of the back; the raphé

of the belly; the axillary and popliteal spaces; the scrotum and perineum; every spot where the skin is exposed to the air and sunlight, or where it is covered by the clothes and the circulation of the part is rapid. Sometimes there is a bronzing of the mucous membranes, the lips, gums, and tongue. There is none of this here. In some cases the whole body is discolored. This discoloration is peculiar in hue; like sun-burn, or the mahogany tinge of the Creole, Malay, or mulatto. In this case it is more characteristic than usual: the edges are abrupt and do not shade off gradually. I have been able to notice the peculiar fact, spoken of by others, that the discoloration is deeper during the acute gastric attacks, and clears up as they pass off. This discoloration is the least constant and least characteristic of all the symptoms. There is pigment deposited on the cheeks and forehead in some uterine diseases. So in pregnancy, chronic peritonitis, and abscess, particularly in deep spinal abscess.

How can this disease, centred in such comparatively unimportant structures, give rise to such various and grave symptoms? I think I can give you a rational explanation. The asthenia may, I think, be attributed to the prolonged reflex irritation of the nerve-centres; the frequent action of the heart with small, feeble pulse, and the disposition to breathlessness, or even syncope, upon exertion, may be referred to the implication of the pneumogastrics and phrenics, or to irritation of the thoracic ganglia of the sympathetic; the irritability of the stomach, with nausea and vomiting, and the occasional abdominal pain and diarrhœa, would point to interference with the solar plexus and semilunar ganglia; and it is further possible that the catarrhal inflammation of the mucous membrane of the stomach and intestines may depend upon disturbance of these same ganglia. The presence of the air and sunlight has something to do with the deposition of pigment. There is also an increased normal tendency to pigmentation by the irritation of the nerves. The pigment is drawn to a part by anything that stimulates the circulation.

The general symptoms are also, no doubt, partly due to the progressive interference with the elaboration of the blood. In some cases there may be very marked leukæmia present. There is no alteration of the blood in this case. (The only change noted is the abnormal inclination of the red blood disks to form long rouleaux.) It must be remembered also that when bodies undergo caseous degeneration, they tend to infect the system. Their degeneration is attended usually by dyscrasia, and the production of tuberculosis and anæmia.

The course of this disease is generally from one to five years. The prognosis is grave. No cases taken at this stage have ever entirely recovered. The disease may, however, be temporarily checked. Sudden death is frequent from fatal syncope.

As regards the treatment; rest is chiefly indicated, with good hygienic influences and wholesome food. In some cases an exclusive milk diet does great good. The bowels and other excretions should be carefully attended to. No long journeys should be allowed. Among medicines there is no specific. The system should be sustained on arsenic, iron, and cod-liver oil. Counter-irritation over the seat of disease may be useful in early stages, as also faradization with mild currents. On general principles, nitrate of silver and iodide of potassium should be administered. The former drug is of great use where there is irritability of the stomach and intestines. Where the vomiting is violent and otherwise uncontrollable, chlorodyne or temporary enemata may be used. Where there is palpitation and dyspnœa, digitalis is invaluable. The best forms of iron to be employed are the iodide and sesquichloride. A very good prescription is the following one recommended by Greenhow:

℞ Ferri sesquichloridi,
Chloroformi, āā ♏ xv–xx;
Glycerinæ, ʒij. M.

S.—Three times a day in water.

I generally prescribe the dialyzed iron. Phosphorus by reason of its effect upon the elaboration of the blood was formerly used in this disease, but I do not place much confidence in it. Alcohol should be given in small quantities and in whatever form is best assimilated by the stomach. Strychnia may have done good in some cases. Extirpation of the capsules is of course out of the question in the present state of our knowledge.

TETANUS.—Dr. A. Rooch reports (*St. Louis Clinical Record*, October) a case of traumatic tetanus recovered under the use of chloral and curara.

ORIGINAL COMMUNICATIONS.

THE INHIBITORY FUNCTION OF THE SPINAL CORD.

BY ISAAC OTT, M.D.,

Late Demonstrator of Physiology at the University of Pennsylvania.

IT has been demonstrated that when either a cold- or a warm-blooded animal has its medulla oblongata severed, the spinal reflex activity becomes much more intense. Setschenow* discovered that mechanical, chemical, or electrical irritation of the thalami optici and corpora quadrigemina causes a depression of spinal reflex actions. Herzen, in Schiff's laboratory at Florence, attempted to refute these facts, but so far has not accomplished it. Cyon has tried to explain the result in another manner; but Setschenow has ably replied to all the objectors. To measure reflex excitability I employed Türck's method. About $\frac{1}{20}$ per cent. solution of sulphuric acid was employed, into which the foot was dipped, and the time till the foot was withdrawn counted by a metronome beating one hundred times per minute. The frog was previously deprived of his cerebrum by a transverse cut just in front of the membrana tympani. The reflex actions of a frog in such a state—that is, brainless—do not differ from those with the cerebrum intact. Such a frog—that is, with cerebrum ablated—is a living machine, only moving when a spring or nerve is touched. I do not mean to say that the cerebrum has not the power to call the reflex inhibitory ganglia into exaggerated activity: it is highly probable that the cerebrum reinforces them. When a brainless frog has his thalami optici or corpora quadrigemina irritated by section or by a piece of chloride of sodium, there is a great fall in reflex activity. If now the medulla oblongata is removed, this is followed by a considerable rise of spinal reflex excitability. In my experiments I found that the brown-spotted frog was the most suitable for experimentation, and all the experiments were performed with it. After the use of the acid solution the foot was immediately immersed in water, so as to wash off the acid and prevent its action on the skin. The temperature must not be too high, or reflex activity is soon lost. Loss of much blood acts in a similar manner. Setschenow† also first discovered that after removal of the cerebrum, irritation of the sciatic also produced a depression of reflex activity.

The following experiment illustrates it:

Exp. I.—Frog; cerebrum ablated on a previous day.

	Metronome Beats.
2.55 P.M.	3
2.57 P.M.	Sciatic nerve irritated at o, Dubois' induction apparatus, for five seconds.
2.58 P.M.	6

Here the fall of reflex action is due to the irritation being carried to the centres of Setschenow, which are thrown into exaggerated activity and thus greatly depress spinal reflex action. Weil‡ discovered that if in a frog whose cerebrum is ablated, and the heart slowed, the centres of Setschenow are stimulated for about ten minutes, when their power is a vanishing quantity. In the succeeding experiment the heart was ligated and cerebrum ablated:

Exp. II.—Frog, at

	Metronome Beats.
10.10 A.M.	3
10.17 A.M.	30
10.18 A.M.	15
10.32 A.M.	14
10.33 A.M.	Sciatic irritated at o, Dubois, for fifteen seconds.
10.34 A.M.	14
10.47 A.M.	No reflex action.

Here the centres of Setschenow were stimulated, and reflex excitability was reduced; but when they were suffering a growing paralysis of power the reflex activity partially recovered. This experiment also demonstrates a new fact, that near death, after removal of the cerebrum and ligature of the heart, irritation of the sciatic did not depress reflex activity. This would be expected when the centres of Setschenow are gradually losing their inhibitory power. The same fact is shown in the next experiment:

Exp. III.—Frog; cerebrum ablated a few hours before.

	Metronome Beats.
8.30 A.M.	Heart ligated and sciatic prepared.
8.31 A.M.	12
8.32 A.M.	Sciatic irritation at o, Dubois, for ten seconds, 17

* Physiologische Studien, etc., Berlin, 1863.
S und Paschutin, Neue Versuche am Hirn und Rückenmark, Berlin, 1865.
Pflüger's Archiv, 1876.

† Ueber die elektrische und chemische Reizung des Sensiblen Rückenmarksnerven des Frosches, Gräz, 1868.

‡ Reichert's Archiv, 1871.

	Metronome Beats.
8.50 A.M.	20
8.57 A.M.	20
9.05 A.M.	22
9.06 A.M.	Sciatic irritated at 0, Dubois, for fifteen seconds.
9.07 A.M.	22

As is seen, near the final extinction of reflex activity, irritation of the sciatic does not reduce reflex irritability. Certainly, too long an irritation will depress reflex activity by exhausting the ganglia concerned. It has occasionally happened near death that irritation of the nerve did not reduce the activity of the apparatus concerned in reflex action, whilst in the next minute death ensued. Here the ganglia must have had their vitality greatly reduced by the irritation, yet the reflex apparatus was set in motion just as quickly as before the irritation.

In the last experiment it will be noticed that in the commencement of the experiment irritation of the sciatic reduced the reflex power, the centres of Setschenow still being in activity. In ligation of the heart the spinal blood-vessels are necessarily gorged with blood, and the oxygen is soon used up in tissue-metamorphosis, and carbonic acid is developed. Here the want of oxygen calls the inhibitory centres into increased activity, but, the want of pabulum growing greater, they soon lose their irritability. That irritation of a sensory nerve will call the vaso-motor centres into action, and diminish the amount of blood in the spinal capillaries, is true; but when the heart is ligated it is exceedingly improbable that spinal anæmia has anything to do with the above phenomena. Setschenow also discovered that if after section of the medulla the sciatic is irritated, there is a fall in reflex activity.

Exp. IV.—Frog; at

	Metronome Beats.
3.09 P.M.	Medulla oblongata severed.
4.15 P.M.	13
4.16 P.M.	Irritation of opposite sciatic at 140 millimetres, Dubois, for thirty seconds.
4.17 P.M.	19
4.30 P.M.	19
5 P.M.	13

This inhibition of reflex action also takes place when the sensory nerves of a warm-blooded animal are irritated below the section of the spinal cord. Nothnagel has also studied this action, and, like Setschenow, believes that there are inhibitory ganglia in the spinal cord. I shall attempt in this paper to base this hypothesis on more stable ground. Not only do I believe that there are ganglia inhibiting spinal reflex acts, but also spinal vaso-motor centres. Irritation of the fibres of the sympathetic also reduces reflex action, as is shown in the next experiment:

Exp. V.—Frog; medulla oblongata severed; intestine bared at

	Metronome Beats.
2.45 P.M.	
3 P.M.	5
3.02 P.M.	Intestine irritated with Dubois' coil, at 75 millimetres, for fifteen seconds.
3.04 P.M.	9

The irritation of sympathetic fibres reduces spinal reflex power, an effect similar to that seen with the nerves of animal life. Simultaneous irritation of the nerves in both extremities was followed by similar results:

Exp. VI.—Frog; medulla severed at

	Metronome Beats.
1.40 P.M.	
2.05 P.M.	4
2.06 P.M.	Irritation of the skin of both extremities, at 75 millimetres, Dubois' apparatus, for thirty seconds.
2.07 P.M.	7

Nothnagel* has proved that in a decapitated frog, when a bared sciatic is irritated there is only on the closing and opening of the current a reflex movement in the opposite leg; but if after a period of twenty-four hours the same nerve is irritated, there will be clonic convulsions in the opposite extremity. The sensibility is also exaggerated, due, as he thinks, to the inhibitory centres in the decapitated animal losing their power sooner than the ganglia concerned in reflex movement. If the sympathetic nerve-fibres are irritated, there is usually little or no reflex movement of the extremities. If now strychnia is given, there is immediately seen a reflex movement of the extremities, as is shown in the following experiment:

Exp. VII.—Frog; strychnia, subcutaneously, at 10.20 A.M. 10.38 A.M., the medulla oblongata severed, and the intestines exposed and pinched, when active reflex movements took place. If strychnia is given, and a sensory nerve irritated, there also ensues a reduction of reflex excitability.

Exp. VIII.—Frog; received .002 gramme of strychnia subcutaneously. In a few minutes convulsions ensued; co-ordinating power lost. The weakest current of Dubois' apparatus

* English Journal of Physiology, Nov. 1870.

that would excite a convulsion was 135 millimetres for thirty seconds. After this irritation stronger electric currents were needed to produce convulsions. Direct irritation of the spinal cord also reduces spinal reflex activity.

Exp. IX.—Frog; medulla severed at

	Metronome Beats.
12.45 P.M.	
12.55 P.M.	4
12.58 P.M.	Irritation of lower section of the cord with a needle.
1 P.M.	9

Now, if slowing of the heart by solution of nitrate of potassium locally applied, in five to ten minutes causes vanishing of the inhibitory power of Setschenow's centres and an absence near death of reduction of reflex power upon irritation of the sciatic, then, after section of the medulla the supposed spinal inhibitory centres after a time should not produce a depression of spinal reflex excitability upon irritation of the sciatic. Certainly, in all these irritations of the sciatic they must not be continued so long as to exhaust the spinal cord, which would certainly reduce reflex activity.

I shall now demonstrate that such an event happens.

Exp. X.—Frog; medulla severed, heart ligated, and sciatic prepared.

	Metronome Beats.
4.5 P.M.	4
4.10 P.M.	4
	Sciatic irritated at 50 millimetres, Dubois' apparatus, for thirty seconds.
4.12 P.M.	6
4.18 P.M.	7
	Sciatic irritated at 50 millimetres, Dubois' apparatus, for thirty seconds.
4.20 P.M.	7

If the sympathetic is irritated, the effect is the same.

Exp. XI.—Frog; at 1.25 P.M. heart ligated, medulla severed; a coil of intestine exposed.

	Metronome Beats.
1.38 P.M.	4
1.39 P.M.	Intestine irritated at 0, Dubois' apparatus, for thirty seconds.
1.40 P.M.	4

If the cord is locally irritated there is no reduction of reflex power.

Exp. XII.—Frog; at 9.28 A.M., heart ligated, medulla severed.

	Metronome Beats.
9.38 A.M.	6
9.39 A.M.	Irritation of lower section of the spinal cord with a needle producing twitching.
9 40 A.M.	6
9.44 A.M.	6

To my mind, the best explanation of this series of facts is that there are in the gray matter of the spinal cord ganglia which inhibit reflex action; that the spinal inhibitory ganglia and spinal reflex ganglia concerned in reflex movements are antagonistic forces; that the inhibitory ganglia, like those in the heart, regulate and co-ordinate reflex action; that when strychnia is given, the ganglia of reflex movement become so exaggerated in activity that the inhibitory ganglia lose all control over them; there is no co-ordination, and convulsions result. The idea entertained by some that strychnia paralyzes the inhibitory ganglia, and thus increases reflex excitability, is, to my mind, perfectly untenable. If strychnia does anything with a nerve-centre it certainly excites it: besides, sensory irritation reduces the reflex excitability of a spinal cord affected by strychnia by calling the inhibitory ganglia into action, as a stronger electric stimulus was needed to excite convulsions after a previous irritation. Strychnia excites the monarchical vaso-motor centre, the spinal vaso-motor centres, the centres of special sense, and so on. How are we to explain the action of morphia on the spinal cord? It at first reduces during the first few hours the reflex irritability; during the next ten hours the reflex activity rises, causing convulsions, when, finally, the cord returns to the normal state. Here the inhibitory ganglia of the spinal cord are first called into action, but finally the reflex ganglia are so stimulated that they overcome completely the inhibitory ganglia, and convulsions result. With the decrease of spinal reflex excitability the spinal inhibitory ganglia regain their co-ordinating sway. Gelseminic acid also reduces spinal excitability, and afterwards produces tetanus. The spinal inhibitory ganglia may be compared to a fly-wheel or governor of an engine, whilst the reflex ganglia are similar to a steam motor. These two kinds of ganglia are in constant activity, and play against each other as the cardio-inhibitory ganglia do against the cardio-motor. Now, if this hypothesis is true, when an agent is administered which paralyzes inhibitory ganglia wherever found, then irritation of a sensory nerve should be without effect. In atropia an agent is

found possessing the just named properties. When it was given it was discovered that irritation of a sensory nerve after spinal section had no effect in the reduction of reflex action. The following experiments show this. I thought it best to give it on a previous day, as Fraser, in his beautiful researches, has found that small doses require some hours to develop convulsions. I do not by any means doubt but that atropia also greatly excites the reflex ganglia, just as it does the cardio-motor ganglia whilst it paralyzes the cardio-inhibitory.

Exp. XIII.—Frog; at 10.20 A.M. medulla divided, sciatic bared; on previous day .004 gramme of atropine subcutaneously.

	Metronome Beats.
10.45 A.M.	4
10.46 A.M.	Sciatic irritation at 0, Dubois' apparatus, for forty-five seconds.
10.47 A.M.	4
10.53 A.M.	5
10.54 A.M.	Sciatic irritation at 0, Dubois' apparatus, for thirty seconds.
10.55 A.M.	5

The pneumogastrics were paralyzed.

Exp. XIV.—Frog; at 11.12 A.M. medulla severed, sciatic prepared; atropine .004 gr. on previous day.

	Metronome Beats.
11.22 A.M.	5
11.25 A.M.	Irritation of sciatic at 0, Dubois' apparatus, for thirty seconds.
11.31 A.M.	6
11.32 A.M.	Irritation of sciatic at 0, Dubois' apparatus, for thirty seconds.
11.33 A.M.	6

The pneumogastrics paralyzed.

Here atropine in the course of twenty-four hours paralyzed the spinal inhibitory ganglia, and sensory irritation did not reduce the reflex activity of the spinal cord. Certainly if an irritation is long continued spinal reflex power will be decreased. Goltz* has shown that if a frog has his cerebrum ablated and the skin irritated, the frog will croak. If now a sensory nerve is strongly stimulated, this croak will be prevented. It has also been shown by Goltz that a stroke on the abdomen of a frog arrests its heart through the inhibitory influence of the vagi. If now a sensory nerve is strongly stimulated, this experiment fails. Here the ganglia inhibiting reflex action have temporarily inhibited the usual reflex acts; the reflex mechanism is not so easily excited as before. In a child, where the inhibitory ganglia of reflex action are feeble, irritation of the sympathetic fibres by undigested food easily throws the reflex ganglia into uncöordinated activity. But in adult life, when the inhibitory ganglia have greater power, indigestion does not produce convulsions, except in individuals whose general strength is feeble and who consequently have weak inhibitory centres. In certain cases of localized myelitis, when voluntary movement is abolished, movements occur which are very strong and uncöordinated. So much tremendous force is evolved in such an irregular manner as is not seen in health, when the inhibitory ganglia are in control.

* Beiträge, Berlin, 1869.

GANGLIA INHIBITING SPINAL VASO-MOTOR CENTRES.

When a frog has his medulla severed, is made motionless by woorari, the web of his foot placed in the field of a microscope, and a sensory nerve is irritated, the capillaries contract. If strychnia is given, this contraction is much more intense. Dr. Schlesinger, in experimenting on rabbits, found that strychnia, after section of the spinal cord, elevated the blood-pressure, and that sciatic irritation elevated it still more. Dr. Klapp has repeated these experiments on cats, and found that after spinal section strychnia increased the arterial tension, and sciatic irritation also increased it. Dr. Klapp's experiments have been confirmed by Heidenhain and Kabierski. When a sensory nerve is irritated there is a contraction of the capillaries supplied by the splanchnics, and a widening of the vessels of the skin. Now, Kabierski found that when strychnia is given the vaso-motor nerves contract, instead of dilating, the blood-vessels of the skin. These facts, it seems to me, are easily explained by the hypothesis that strychnia excites the spinal vaso-motor centres to such a degree that the spinal ganglia inhibiting them are unable to control them, and contraction of the vessels results upon an irritation of a sensory nerve. Ordinarily, stimulation of a sensory nerve would call into action the inhibitory ganglia controlling the spinal vaso-motor ganglia and prevent a rise of blood-pressure.

In the course of the above investigations I have made about forty experiments. The cell used to generate electricity was a Leclanché.

The following are the conclusions:

1. As there is in the brain a monarchical vaso-motor centre, and in the spinal cord weaker vaso-motor centres, so are there in the brain monarchical inhibitory centres of reflex actions, and in the spinal cord weaker inhibitory centres of reflex movements.

2. There are also ganglia in the spinal cord inhibiting spinal vaso-motor centres.

A CASE OF ARSENICAL POISONING TREATED WITH DIALYZED IRON.

BY THOMAS B. REED, M.D.

A CASE of arsenical poisoning occurred lately in my private practice, which seems to be valuable enough for publication, both on account of the completeness of the details and the intelligence and reliability of the patient, but especially as it is, so far as I am aware, the first case where the new remedy of "dialyzed iron" has been put to the test as an antidote.

As I was leaving my office one morning, a few weeks ago, a young lady patient, Miss S., hastily entered, with a face indicative of intense pain and nervous disturbance, saying, "Doctor, I am poisoned." Her story was as follows. While attending to the wants of a valuable servant who was sick and confined to her bed, Miss S. found hidden away in the servant's trunk a paper of arsenious acid, which had been procured by Mrs. S. some weeks before, for use as a poison for rats. As this servant had been in ill health for some time, and morbid and melancholy, Miss S. at once very naturally, and no doubt very rightly, supposed that she had secreted the poison for the purpose of taking her own life. Quietly placing the packet of arsenic (which was open) in her pocket, she continued her duties, intending at the earliest moment to put it in a safe place. Days elapsed, the arsenic was forgotten, stored away in the pocket of her wrapper, until this unlucky morning, when, putting a couple of handfuls of gum-drops and bon-bons into her *arsenic pocket*, she sat down to her sewing-machine and her confectionery. She noticed from time to time, as she sewed, more powder upon the drops than seemed usual, but she continued quietly to dust them off as she ate, and went on with her work. *Can anything be more absurdly tragic than this unconscious suicide, deliberately eating gum-drops powdered with arsenic?* Probably an hour and a half passed in this innocent amusement, when suddenly "becoming deathly sick, instantly followed by intense pain," as if, as she quaintly expressed it, "she had had a pure mustard-plaster on the inside of her stomach," she was roused to the consciousness that some strange mischief was at work. Terrified on remembering the arsenic, she attempted, unsuccessfully, to relieve her stomach with warm water; then, unwilling to alarm her mother, who was also an invalid, she hastily threw on her street dress and hat and hurried to my office, about two blocks away. Fortunately for both of us, I had upon my table a sample bottle of dialyzed iron (John Wyeth & Bro.), and as soon as she told me she had taken arsenic, and before she began her story, I administered a half-tablespoonful of the iron well diluted in a tumbler of water. This gave her almost instant relief. I repeated the dose in ten minutes, and then gave her a bottle of the iron, directing her to take a similar dose every half-hour, and, later, every hour during the day. I saw her at her home in a few hours after, but she had had no return of her pain, except some slight cramp in the lower bowel and limbs; and a dose of magnesia at night, with mucilaginous drinks, soft food, with occasional doses of the iron well diluted, kept up for a few days, completed her cure. At my request, the day after her attack, Miss S. put into my hands the pocket cut from the wrapper, which she could not be persuaded to touch after her poisoning. This I transferred to a reliable analytical chemist, from whose report of his examination, now in my possession, I condense the following. "In the pocket of a chintz dress I found a small packet labelled Arsenic,—Poison,—and in this packet a second envelope, open on its long and upper side, containing a white powder. Both outer and inner envelopes were worn as letters carried in pockets are. Between the outer and inner envelopes was a white powder, and in the pocket itself, mixed with the powder, I found two (2) sugar-crystallized, soft gum-drops, and one (1) sugar-coated bon-bon, all three (3) richly covered with the powder. The powder, which with a brush I took away from the gum-drops, and the dragée, weighed $3\frac{1}{2}$ grains, and the remaining powder, after separating the gum and sugar, weighed $2\frac{1}{16}$ grains. In the pocket I found also $6\frac{5}{8}$ grains of the white powder. The powder obtained from the gum-drops and dragée gave all the tests arsenious acid gives."

What amount of arsenious acid my patient swallowed, it is, of course, impossible to say. It is certain that from this open package of arsenic a considerable quantity escaped into the pocket, and the gum-drops were mixed with it, as she states "that she had to dust the powder off upon her work as she ate," and the three remaining after show $2\frac{1}{16}$ grains of arsenious acid upon them on examination by the chemist. I have perhaps been unnecessarily full in the details of this case, but

I think they have established several facts. 1st, that my patient did swallow, in the space of an hour or more, *numerous poisonous doses* of arsenious acid in powder; 2d, that I found her with most marked symptoms of arsenical poisoning; and, 3d, that by the administration of moderate doses of dialyzed iron, well diluted, I was enabled to give her immediate and certain relief, and ultimate and entire restoration to health. I do not propose in the limits of this paper to discuss the exact chemistry of the dialyzed iron. It is, I believe (when properly prepared, as I have since investigated carefully the process of its formation), a solution of peroxide of iron in the colloid form, with perhaps a trace of hydrochloric acid; but that it will, when very largely diluted with water, perfectly coagulate arsenious acid *in solution*, any one can satisfy himself in a five minutes' test. The only remaining point of interest professionally is, will it neutralize arsenious acid when taken *in powder* (*bulk*) into the stomach? It is held by most authorities, I believe, that when arsenious acid is taken in bulk into the stomach, the iron antidote is not reliable. (See Dunglison, R. J. (latest paper on the subject), in his "Practitioner's Reference Book," page 229.) Yet we know from daily experience that arsenious acid is absorbed by the stomach when taken in minute doses, and I think the evidence in this case shows that arsenic in powder did poison when presented to and acted upon by a comparatively empty stomach (at least three hours having elapsed since her breakfast), and that the solution of peroxide of iron (dialyzed iron) did prove a prompt and reliable antidote, coagulating and neutralizing the arsenic. Arsenious acid *acts as it is dissolved*, and the antidote (if supplied) combines, *pari passu*, with the solution formed by the liquids of the stomach, and renders it inert before damage is done to the mucous coat of the stomach or it is absorbed into the system. Within twenty seconds after I learned that arsenic had been swallowed I sent a full dose of the antidote after the poison, and with positive and immediate relief to the patient. My experience with dialyzed iron as a pleasant and efficient means of introducing iron into the economy is too limited for an opinion, but I feel disposed, from the history of this case, to strongly recommend it as a safe, reliable, and always-ready-at-a-moment's-notice remedy and antidote for arsenical poisoning.

1427 Walnut Street.

PENNSYLVANIA SUPERSTITION.

BY S. C. DE VENY, M.D.

THE extracts from the thesis of Dr. Kludgian, published in your issue of October 27, have suggested putting on record some of the superstitions which prevail in the German counties of Central Pennsylvania. The natives of this section (Lancaster County) are given to superstition, and the majority of them keep in their possession books containing incantations and recipes that are believed to drive out devils and to cure all the "ills that flesh is heir to." So great a hold has "pow-wowing" taken that some of the people are unwilling to patronize physicians who are not ready to use these means to aid their drugs. There are several physicians (?) (who profess to be regulars) who have built immense reputations and fortunes by "pandering to the public taste." The following are fair samples of what a book contains that was "cabbaged" (it could not have been had otherwise) from a house in which I was attending a patient.

"For hydrophobia.—Inscribe upon a loaf of bread, on the upper crust, the following words, and give it to man or beast, as the case may require. Gerum Henium Lada Frium, hide thyself."

"For shooting pains.—Carry upon your body, Arill at Goll Gottza."

"For gonorrhœa.—Take the excrementis of a gander and tie it warm over the burnt organ."

Erysipelas is known in this region as "wild fire," for which to repeat the following is considered infallible: "The wild fire and the dragon flew over the wagon. The wild fire abated and the dragon skated."

"For epilepsy.—Take some part of the after-birth of a woman, also part of a bone from a human body, from a grave yard; pulverize both, mix the mass well, and give to the patient three points of a knife full. If a person is attacked by this disease and falls upon the ground, you must let him lie and not touch him. † † †." When these crosses appear at the end of any cure, the name of the Trinity is to be repeated three times.

The following is said to be "first-chop,"

and quite a number are ready to vouch for its efficacy. "To transplant the rupture of a young man.—Cut three tufts of hair from the centre of his head; tie the same in a clean cloth, carry it into another county, and bury it under a young willow-tree so that it may grow up together. † † †. Proved."

"For worms in the body.—God went upon an acre field, a red acre land. He made three furrows and found three worms. The first was black, the other was white, the third was red: forthwith, N. N. (name of the victim), all thy worms be dead. † † †. Move three times around the navel while pronouncing the three holiest names."

The next remedy, I have been told, is a sure cure for colic.—"An old tuft head, an old body-coat, a glass of rue wine; womb cease thy griping pain. Three times. Excellent."

"For consumption.—When consumption has taken hold of a person, let him take a good quart of wine in the evening. The first urine such a sick person passes after drinking such wine, let run out, but the second and third time catch the urine in a glass vessel. Let this stand in a cellar, twenty-four hours, till it clears. Thereupon take a good portion of loaf-sugar, and melt the same in a copper pan. Of the urine, pour as much as is pure and clear into the melted sugar; let it boil up like a soup. Drink morning and evening a wine-glassful thereof. It will also cure the gravel of the bladder."

Besides charms for disease, there are many for the detection and punishment of thieves and murderers; and again others to prevent persons from shooting accurately with either gun or pistol; and quite a number to insure success in law-suits. A great many are so filthy in character as to be unfit for publication, and sacred names are handled so carelessly as to make the book sacrilegious.

The title of this magnificent work is "Albertus Magnus, or the Egyptian Secrets Revealed."

Frequently while attending women in labor I have noticed them blowing into their hands after the birth of the child, as if they were cold, and, upon inquiring why they did it, was informed that it loosened and helped away the after-birth. This has happened, too, in families that are supposed to be quite intelligent. Few of these things are done in the presence of the practitioner, but the moment he gives his diagnosis and turns his back, "Albertus" is brought out from the old clock and consulted.

WILLIAMSTOWN, PA.

NOTES OF HOSPITAL PRACTICE.

HOSPITAL OF THE UNIVERSITY OF PENNSYLVANIA.

SERVICE OF PROF. AGNEW.

Reported by H. R. WHARTON, M.D.

FOREIGN BODY IN THE BLADDER REMOVED BY MEDIAN OPERATION; RECOVERY.

JOHN HILL, æt. 17 years, residing in Cecil County, Maryland, was admitted to the University Hospital, June 11, 1877, with the following history:

Three weeks previous to his admission to the hospital, while suffering from an attack of pneumonia, it became necessary to use a catheter. The instrument used in this case was a silver-plated one consisting of two pieces, and in withdrawing it the lower piece, about six inches in length, became detached and slipped back into the bladder.

All attempts to remove the body proved unsuccessful.

The patient now experienced great pain in passing his water, so that a catheter was used continuously, and, as his condition was gradually growing worse, it was decided to bring him to the city for an operation.

Upon examination the patient was found emaciated, his temperature elevated, belly tympanitic and tender on pressure over the hypogastric region; he suffers great pain on the slightest motion, and is not able to pass his water.

June 12.—The patient's bowels having been previously opened by an enema, he was etherized, and on introducing a sound into the bladder the foreign body could be easily felt.

A staff was then introduced, and the bladder was entered by the median operation. Upon examining the bladder the foreign body was found fixed obliquely across the arch of the pubis, one end fixed behind the right pubic bone, the other imbedded in the posterior wall of the bladder.

All manipulation had, of necessity, to be very delicate, on account of the danger of perforating the walls of the bladder;

and, as it was found impossible to dislodge the body without using considerable force, it was divided in the wound by means of bone pliers, and the fragments brought out of the wound without difficulty.

The body, as before stated, proved to be the curved end of a metallic catheter about six inches in length.

The bladder was then washed out with tepid water, and as there was no hemorrhage the patient was put to bed and given an opiate as soon as he reacted from his ether.

June 13.—Patient in good condition; water escaping freely from wound; temperature somewhat elevated; given mist. potassii citrat. with a small amount of morphia.

June 25.—Has had no unfavorable symptoms; passes a small amount of water by the penis.

July 2.—Patient now passes all his water by the penis; wound closed.

July 26.—Discharged cured.

FOREIGN BODY IN THE TRACHEA; TRACHEOTOMY; RECOVERY.

George S., æt. 5 years, residing at New Holland, Pennsylvania, while playing with some grains of corn, accidentally threw one into his mouth, and was instantly seized with a severe paroxysm of coughing, and complained of great pain in his chest.

The child soon began to suffer from paroxysmal attacks of dyspnœa, and could not rest in the horizontal position. As his symptoms were rapidly becoming more alarming, his parents brought him to the hospital on the third day after the accident.

When admitted, the child was much exhausted from want of sleep, his breathing labored, and his face slightly congested. These symptoms were much aggravated during the paroxysmal attacks of dyspnœa.

Upon auscultation a body could be heard moving in the trachea, changing its position with inspiration and expiration; air was found entering both lungs.

April 5.—Chloroform was administered, and as soon as the child was unconscious Dr. Agnew proceeded to open the trachea above the isthmus of the thyroid gland; a bunch of thyroid veins were injured, and had to be ligated; at this juncture the child ceased breathing; the trachea was opened quickly, retractors introduced, and the child turned on his face and artificial respiration resorted to; at the first full expiration the foreign body was thrown violently from the wound: it was found to be a large grain of gourd seed-corn.

As soon as respiration was again established through the mouth, as the wound was dry, it was closed by three silver-wire sutures.

The child was then put to bed in a room with an even temperature and a moist atmosphere, and was carefully watched.

April 6.—Child slept well; small amount of air and frothy mucus escaping from wound.

April 12.—Has been doing remarkably well; sutures have all cut out; some air and mucus still escape from the wound.

April 15.—Wound entirely closed; child in good condition.

April 20.—Discharged cured.

TRANSLATIONS.

Preparations of Iron used Hypodermically.—Some experiments have been made on this subject by Hugenin, of Zurich (*Giornale di Medicina Militare*. No. 6, Rome, 1877, p. 555; from *Correspondenz-Blatt*), with apparently very beneficial results. The patient, who suffered with pernicious anæmia, was unable to absorb the ferruginous preparations by the gastro-intestinal tract. His condition was extremely grave, as shown by the skin of cadaveric paleness, the œdema of the extremities, and the cardiac phenomena; but after a few subcutaneous injections of small quantities of iron he began to improve, and continued to do so until he finally became fully convalescent. The preparation employed was pyrophosphate of iron in very small doses (about half a grain), which seem to be abundantly sufficient.

J. B. R.

Observations on Yellow Fever.—An abstract of the paper of C. Brendel on the epidemic of this disease in Montevideo, during 1873, is given in *Berliner Klinische Wochenschrift*, No. 33, 1877, p. 481. There were 400 deaths in the population of 80,000, and hence the opportunity for study was abundant. He formulates the conclusions somewhat in this wise. 1. The disease is liable to occur if a susceptible (unprotected?) person place himself in an infected locality even for a very short time. 2. The admission of infected goods

into a place, susceptible on account of situation or by reason of the season of the year, can give rise to an outbreak of the disease without the agency of diseased persons. 3. Into non-susceptible localities, proved by experience to be such, though often in the vicinity of infected places, infected objects and persons may be brought without giving rise to new cases of disease. 4. The period of incubation is on an average about eight days. 5. The disease extends but a short distance inland. 6. Spontaneous cases have never been observed in Montevideo. 7. Yellow fever does not occur before the middle of January, and ends during June. It is, therefore, a disease of the autumn season, for the observations were made, it must be remembered, in the Southern hemisphere. J. B. R.

Nystagmus among Miners.—M. Dransart has made a careful study of this disease among the miners of Anzin (*Le Progrès Médical*, No. 35, 1877, p. 670). The oscillation occurs in the vertical or in the horizontal meridian, or in both together, giving a circular or elliptical movement to the globe, according to the relative action of the displacing muscles. The nystagmus is particularly prominent when the line of vision is directed above a horizontal plane passing through the cornea, and is diminished when the patient looks below this plane towards the ground. The affection, accordingly, is found chiefly in those miners whose work compels them to look continually overhead. The author's observations lead him to believe that the condition is dependent on a paresis or insufficiency of the muscles which turn the eyeball upward, and of the internal rectus, to which are added accommodative troubles; and, at the same time, the patient always suffers from very marked anæmia. The treatment recommended consists of iron, quinine, strychnia, combined with electricity, and work outside the mines.

J. B. R.

Nitrate of Aluminium in Pruritus of the Vulva.—The atrocious suffering caused by vulvar pruritus is well known, and is sufficiently frequent to deserve attention. Generally a great number of remedies are used, and only temporary improvement obtained: hence an efficacious application will be a precious acquisition. According to *La Revista Médica de Chile*, Año V. p. 349 (from *Bull. Gén. de Thér.*), this has been found by Dr. Gill in a solution of nitrate of aluminium, made with five to seven parts by weight of distilled water, used locally twice daily, and also as a vaginal injection. J. B. R.

The Climate of Algeria.—At a recent meeting of the French Association for the Advancement of Sciences (*Le Progrès Médical*, No. 35, 1877, p. 675), M. Landowski stated that the Algerine climate presented the conditions most favorable for a winter resort for consumptives. There are, so to speak, four climates: that of the coast, influenced of course by the sea; that of the plateaux, where the marine influence is secondary; the climate of the steppes, where the predominant feature is that of a continental atmosphere; and, lastly, the peculiar climatic influence of the great desert of Sahara. It is the coast climate which is specially studied by M. Landowski in its therapeutic aspects; and this has two distinct seasons, viz., the hot and the temperate. The mean temperature for November is 62.6° F.; for December, January, and February, 55.4° F.; for March, a degree or two higher than in the preceding months; and for April, 62.6° F. The minimum of the whole temperate season is 60.8° F.; the maximum, 69.8° F. In the warm season the maximum is 86° F., and the minimum 43° F. J. B. R.

Transitory Albuminuria in Delirium Tremens.—This phenomenon occurred in 51 out of 156 cases of delirium tremens observed by Weinberg (*Giornale di Medicina Militare*, No. 6, Rome, 1877, p. 546; from *Deutsche Med. Wochenschrift*). The duration of the albuminuria coincided with that of the delirium; and as in no case were found any of the pathological elements pointing to disease of the kidneys, there remains no explanation but that the symptom is due to alteration of innervation. The treatment adopted was essentially symptomatic, consisting of corroborant diet, perhaps a little alcohol and chloral.

J. B. R.

Xanthium Spinosum in the Treatment of Hydrophobia.—Dr. Grzygmala has made some experiments with the leaves of the xanthium spinosum as a remedy against the disease mentioned (*Revista Médica de Chile*, Santiago, núm. 10, 1877, p. 395; from *Köln. Zeitung*). He does not pretend to cure the disease when developed, but asserts that he can prevent its occurrence by prophylactic treatment, consisting in giving the patient

who has been bitten about ten grains of the powdered leaves three times a day during a period of three weeks. He has treated animals that have been bitten in the same manner, but with larger doses. Several animals were bitten by a mad dog, of which some were treated by xanthium leaves and others were allowed to remain without any medication. Those not treated succumbed to hydrophobia; the others remained well. Again, twelve persons were bitten by a rabid dog, of whom six were treated by different remedies at home, and all became mad; while the remaining six who took xanthium remained well. He gives the account of a number of cases among dogs and cattle where the bitten animals when treated with xanthium remained in good health, but when left without treatment became rabid. It is asserted that Grzygmala has not found this remedy to fail, though using it for ten years.

J. B. R.

The Anti-Fermentative Qualities of Boracic Acid, and its Employment in Therapeutics.—G. Polli (*Centralbl. f. Chir.*, 1877, p. 534), in a lecture before an Italian society, alluded to researches on the anti-fermentative action of boracic acid. He mixed beer, milk, urine, eggs, blood, and meat with boracic acid and borax, which kept them fresh for thirty days in summer, while the substances used for comparison, occasionally without addition, in other cases mixed with sulphite of sodium, went on to putrefaction within fifteen days. This energetic disinfecting action, and the ease with which boracic acid and borax are tolerated by the human organism, cause Polli to recommend their use in diseases beyond question infectious or where sepsis easily takes place. He adduces several instances where, in tubercular cases, the fever was diminished. In malaria an observer cited by Polli saw no good effects. Another saw benefit from the use of these remedies in certain instances. In chronic cystitis the muco-purulent deposit in the urine disappeared in a few days. Foul wounds became greatly improved by external applications. Dose, 5 grm. (75 gr.) boracic acid, 10 grm. (150 gr.) borax daily. X.

Arsenic in Enlargement of the Lymphatic Glands. — Winiwarter (*Cbl. f. Med.*, 1877, p. 597; from *Wien. Méd. Jahrb.*) gives the results of further experiments (see *Cbl.*, 1875, p. 411) in the employment of arsenic in these enlargements. The arsenic was given internally, and at the same time in the form of parenchymatous injections into the glands. Fowler's solution was ordered in combination with tincture of iron, and in increasing doses (from twice daily five drops, to twice daily thirty drops). A hypodermic syringe-full of solution may be used for a single injection, employing two or three daily in one part of the tumor or in different tumors. Winiwarter's results are as follows. 1. Treatment by arsenious acid is effectual both in malignant lymphoma and in leukæmia, inducing resorption of the hyperplastic glandular tissue. 2. The favorable influence of the acid is due to its peculiar faculty for disintegrating albuminous tissues and thus promoting absorption. 3. In addition, the local effect of the injection and also the arsenical fever exercise a certain influence in reducing the size of the tumors. 4. Cure may require a year; and relapses are also amenable to this treatment. 5. The arsenical treatment may be advantageously combined with operation in malignant lymphoma. X.

Frequency of Diaphragmatic Pleurisy in Acute Peritonitis.—Laroyenne's autopsies (*Berlin. Klin. Wochens.*, 1877, p. 425; from *Lyon Méd.*, January 7) show inflammation of the diaphragmatic pleura to be a not infrequent complication of general acute peritonitis. The pleura shows every sign of acute inflammation, vascularization, false membrane, etc. According to L., purulent cords can be traced directly from the peritoneum to the pleura through the diaphragm. These observations are supported by well-known researches into the course of the lymphatic canals of both cavities. X.

Acute Aortitis.—At a recent meeting of the Société Méd. des Hôpitaux, Dujardin-Beaumetz (*Centralbl. f. Med.*, 1877, c. 429; from *La France Méd.*) showed a preparation of acute aortitis from a man 39 years of age, who had suffered while alive with pain in the region of the aorta and attacks of angina pectoris. Neither cardiac nor aortic murmur could be heard. The urine was scanty, the lower extremities œdematous. At the autopsy, there was found hypertrophy of the heart with fatty degeneration and acute inflammation of the aorta. The intima of the latter was red, roughened, and at many points ulcerated. X.

PHILADELPHIA
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PHILADELPHIA, DECEMBER 8, 1877.

EDITORIAL.

HOSPITAL STEWARDS.

IF our information be correct, most if not all of the European armies have a commissioned officer, known as apothecary, who ranks usually as a second lieutenant. In our army this position of apothecary, as well as that of surgeon's assistant and clerk, is filled by a hospital steward, who appears to be a sort of higher "man of all work" in the running of a military hospital, but who, strangely enough, is outranked by all the regimental non-commissioned officers, although he holds his appointment from the President, and not, as they do, from the colonel of the regiment. The pay of the hospital steward is also only thirty dollars a month, and when he is disabled or killed in the service no pension is awarded.

The low position thus assigned to this official contrasts strangely with the amount of education required of him, and is certainly not what is deserved. It has of necessity caused much dissatisfaction, which has from time to time made itself heard in Congress, and last year a bill was introduced by Mr. Charles Foster to improve the rank and pay of these useful and indispensable adjutants to the medical service.

The bill failed to become a law, and a new one has been or is about to be brought forward. The enactment proposed by Mr. Foster increased both rank and pay; but the one now under discussion leaves the rank where it is, although it materially increases the compensation and in many respects makes the position of hospital steward a more advantageous one. We have not room for discussion in details, but we sincerely hope that a law may be enacted by the present Congress which shall assign a rank at least equal to that of the highest non-commissioned officer, a pay of fifty dollars a month, a pension for disability produced in the service, and finally open a possible passage, on proof of fitness by examination, up to the medical staff.

The hospital steward has much of the governmental interests in his keeping, and assuredly nothing breeds carelessness and unfaithfulness more certainly than does well-founded discontent.

LEADING ARTICLES.

VARIATIONS IN WEIGHT OF NEW-BORN INFANTS AND NURSLINGS.

A DISTINGUISHED physiologist is understood to have asserted recently that "the breeders of cattle possess more positive data for the alimentation of animals, than physicians for the nourishment of men."

It is certain that there is much room for investigation in all that pertains to dietetics, more especially the nutrition of infants, and that such investigation should be as thorough and scientific in character as possible. As indicating one direction in which progress has been made towards a rational system of infant feeding, we may mention those careful examinations of the variations in weight of infants under different circumstances, which have been made by various observers. One of these, Fleischmann, of Vienna, has collected and arranged the results of his own investigations and those of others in the form of a clinical lecture, recently published in the well-known *Wiener Klinik* series. It is proposed in the present article to give a few of the results of these observations, which, it may be stated, are supported by ample experimental proof.

The average weight of new-born infants may be taken at 3250 grm., the average weight of males being 3200 to 3380 grm., that of females at 2910 to 3280 grm. Infants born of multiparæ have a greater initial weight than those of primiparæ, the average excess being about 158 grm. The influence of the mother's age on the increase of weight in the infant is, though less striking, still decided up to the fortieth year. After that the average weight of the children born decreases.

Burdach and Chaussier made the interesting observation, which has been confirmed by other investigators, that before the regular growth of children begins, they experience a decrease from the birth-weight. This diminution in weight begins at the moment of birth, and continues from three to four days, though it may be modified by various circumstances. At the end of this time the infant immediately begins to gain. There is no interval of stationary weight. The average loss of weight during the first four days of post-natal existence is 222 grm., equal to about one-fifteenth of the entire weight of a child at full term.

There are several circumstances in connection with this loss of weight immediately after birth, some of which have not as yet been explained. For instance, it is known that the infants of primiparæ recover weight rather more slowly than those of multiparæ. At first sight this might seem explicable from the fact that the nourishment afforded by primiparæ is at first more scanty. Ingerslev, however, allowed sixteen infants of primiparæ to nurse from birth with women who had borne children four or five days previously. The result was somewhat surprising. It was found that not only did these infants lose more weight, but that they also recovered more slowly, than those nursing at their own mothers' breast. This greater loss of weight in the infants of primiparæ must then be admitted as a physiological fact for which we have as yet no explanation. It may be connected with the as yet imperfectly developed assimilative powers of the newly-born infant. It has been suggested that the formation of the "navel scar" has something to do with the loss and gain of weight; but observation has shown that the connection between the two is merely accidental. The loss of weight by the excretions, stools, urine, etc., accounts for part of the loss mentioned, but not by any means for all.

To recapitulate: every child loses weight during the first days of post-natal existence (exceptional instances of increase probably depend on the loss of meconium during birth, and are transitory). This loss amounts, on an average, to about one-fifteenth the weight of the infant, and is more marked in the children of primiparæ and in boys; the latter, however, gaining weight more rapidly than girls. The less mature the infant is at birth, the greater its loss of weight, and the more slowly made up. Increase in weight begins on the third to fourth day, and is independent of the formation of the "navel scar." The loss of meconium and by the excretions accounts for only a small portion of the post-natal loss, which is to be regarded as a physiological fact. Authorities differ with respect to the period required to regain the normal weight. In general, however, it may be asserted that the development of an infant may be regarded as favorable if by the end of the second or third day it has not lost more than 222 grm., and if by the end of the eighth or ninth day it has again recovered its original (birth-) weight.

The daily increase of weight in the infant is a matter of interest, but a matter which was formerly examined into without sufficient care. It was thought sufficient if the infant was weighed at intervals of several months and the increase was divided equally among the intervening periods. It is evident, however, that a careful daily estimate of weight will often afford a valuable aid towards ascertaining the effect of various sorts of food, etc., upon the economy, and thus give data for the foundation of an intelligent scheme of alimentation. Fleischmann quotes Bouchaud's figures, which show an average daily increase in weight during the first month of 25 grm. in an infant weighing 4000 grm. at the end of that time. The increase becomes less considerable every month, until by the twelfth month the daily increase has fallen to 6 grm., the infant's weight at the end of that time having reached 8950 grm. These figures are derived from hospital experience. In private practice the infant's growth is more rapid.

One of the most practical results of these investigations is in determining the sort of food most conducive to the growth and welfare of the infant. It is found that sudden deprivation of mother's milk causes an immediate decrease in weight, lasting three to five days, even when the digestive powers of the infant appear to remain unimpaired. Gradually this loss of weight becomes less and less, and finally gives way to increase of weight. The change for the better takes place more quickly when cow's milk is used. Where condensed milk is given, the loss of weight is greater and is more slowly made up. On this subject Fleischmann remarks that he has never seen such poorly-nourished infants as those fed

on condensed milk. He thinks this, in part, due to inappropriate dilution. Mucilaginous and meat broths are not much better. Liebig's food for infants, and that modification of it known as "Lœflund's extract," show results occasionally as fortunate as those obtained by cow's milk. Nestle's "food" is also a very satisfactory preparation. After the first month it may be given once or twice daily, mixed with pure cow's milk. Occasionally children refuse Nestle's food when mixed with milk, but take it when mingled with water. In Fleischmann's experience the best results in artificial feeding were obtained from a mixture of cow's milk with veal-tea in increasing proportion, 1 : 2, 1 : 1, 2 : 1, given to weak infants every second hour; to stronger children only a few times in the course of the day. The phosphatic constituents of the veal favor the formation of bones and teeth. While sudden weaning exercises an unfavorable influence upon the weight of an infant, this is much less the case where it nurses occasionally at the mother's breast between the meals of artificial food. A larger number of meals given after weaning act favorably on the increase in weight. Not only fevers and intestinal disorders tend to decrease the weight of the infant, but also colds, vaccination, etc.

X.

CORRESPONDENCE.

New York, November 24, 1877.

To the Editor of the Phila. Medical Times:

DEAR SIR,—An unusually interesting meeting of the Academy of Medicine was held November 1, when Prof. Austin Flint, Jr., gave a very graphic account of some experiments *on respiration*, which he has recently been making, and which have caused him to modify the views which he has hitherto held and promulgated in regard to the source of the stimulus which gives rise to the act of respiration. Hitherto he has always taught that the *respiratory sense* was due to a want of oxygen in the general system, producing a sense of want of air, which was conveyed to the medulla oblongata, the centre of respiration, and that the respiratory movements were essentially reflex. Experiments which he personally made in the year 1861 seemed to prove these points to his entire satisfaction. At the present day, Dr. Flint said, nearly all writers agree that the condition of the blood demanding respiration for its vivification is due rather to the want of oxygen than to the presence of carbonic acid; and some of them (among whom he mentioned Hermann and Foster) hold the opinion that the sense of want of air is primarily due to the want of oxygenated blood in the medulla oblongata, and that the lungs and general system have nothing to do with it. So far as he is aware, this view is purely theoretical, up to the present time, never having been substantiated by actual experiment; but the series of experiments which he has just been making would seem fully to sustain it. I shall not attempt to give any accurate details of these, but may perhaps succeed in giving a general idea of their character. They were twelve in number, all upon dogs, and the first was made early in September, 1877. A good-sized dog was etherized, and, the trachea having been opened, the nozzle of a pair of bellows was inserted for the purpose of keeping up artificial respiration. The nozzle was also covered with a sponge saturated with ether, in order to maintain complete anæsthesia. The chest and abdomen were then opened, and, the ribs having been bent backward and the pericardium cut away, the lungs and heart were left fully exposed. It was noticed that there were absolutely no respiratory efforts (the diaphragm remaining perfectly placid) as long as air was supplied to the lungs by the bellows, but in forty-five seconds after artificial respiration was arrested the most violent efforts were made. These were seen first about the corners of the mouth, then the jaws opened widely, and finally the diaphragm began to act. Artificial respiration was now again resumed, and all respiratory efforts ceased; but when the blood-supply of the head was cut off by the ligation of the innominate and left subclavian arteries, violent efforts were made within two minutes, notwithstanding the fact that the lungs were kept fully distended with air by means of the bellows. The vessels springing from the arch of the aorta were then left free, and the descending aorta and ascending vena cava were ligated, when it was found that there were absolutely no respiratory efforts.

The second experiment was nearly identical in character and in its results; and the two experiments showed that the ligation of the aorta had no appreciable effect, but that the ligation of the vessels coming from its arch gives rise to a sense of want of air. It is not enough to tie the innominate, but it is necessary that the left subclavian should also be ligated, because it gives off the vertebral, which goes to form the basilar artery, carrying its blood-supply to the medulla oblongata.

In the third and fourth experiments both the subclavian and both carotid arteries were constricted, and in a short time violent respiratory efforts were noticed. Next, both the carotids and both the vertebrals were constricted, when it was found that there was absence of respiratory efforts for a longer period and that the efforts were of a less violent character

than when the subclavians were constricted also. This led Dr. Flint to suspect that the medulla oblongata was supplied with blood by some anastomosis; but a careful dissection of the subclavian and its branches failed to detect any, so that he is at present somewhat at a loss how to account for the phenomenon observed.

In the sixth and seventh experiments the head of the animal was entirely severed from the body, with the exception of the carotids and jugulars, and feeble movements of respiration were noted, but the shock and hemorrhage were so great as to render the experiments failures. In the eighth and ninth the head was cut off at one blow with a butcher's cleaver. Respiratory efforts were made in each instance for some little time. In the first, the last effort was noticed in sixty-eight seconds, and in the second, at the end of fifty-five seconds. The same thing has often been noticed in decapitated fowls; and these efforts would seem to be due to the want of oxygenated blood in the medulla oblongata. In the last two experiments a canula was inserted into one carotid artery, and, the head being then cut off, oxygenated blood was injected into it, when it was found that the respiratory efforts were much stronger and continued for a longer period than when no injection was thus made. In experiment No. 11 the last effort was noticed in ninety seconds after decapitation, and in No. 12 in ninety-seven seconds.

Although this series of experiments is still incomplete (the last one having been made less than a week before the reading of the paper), Dr. Flint has been led to conclude that the sense of want of air is due to a want of oxygenated blood circulating in the medulla oblongata, which has been pretty conclusively determined to be the sole centre of respiration. They have also caused him to doubt whether the ordinary respiratory movements are reflex in character, as now generally held, and to consider them due rather to a direct stimulus upon the nerve-cells in the respiratory centre. (The first three of the above experiments are given in detail by Prof. Flint in the *New York Medical Journal* for November.)

Prof. Dalton remarked that the experiments were exceedingly striking and suggestive, and especially valuable on account of the accurate precision with which they were made and reported. It was a great gain to know that when the supply of blood is cut off from the head, respiratory efforts are excited, and that when it is cut off from the rest of the body, they are not; but, while it seemed probable that Dr. Flint was right in his deductions, he would like to have a little more information on some points before giving entire assent to his views. We should not forget that in these experiments the circulation was interfered with in other parts as well as the medulla oblongata, and he thought it possible that the ligation itself of so many large vessels had some effect in producing, in an indirect way, the results noted. He was not yet willing to give up the idea that the movements of respiration were to a great extent reflex, and he was of the opinion that the presence of carbonic acid had some effect in exciting the respiratory sense. In his own person he had proved that the extreme sense of suffocation produced by inhaling carbonic acid gas was very different from the much less urgent feeling which the inhalation of a negative gas, like nitrogen, gave rise to; and he could not doubt that by means of its stimulating effect upon the pulmonary mucous membrane it was instrumental, to some extent at least, in originating respiratory movements.

Prof. E. R. Peaslee was of the opinion that Dr. Flint would in time be able fully to substantiate his position; but at the same time, while he was willing to concede that *ordinarily* respiration depended on direct stimulus to the respiratory centre, he thought it could also be excited reflexly whenever, for any reason, the brain refused to respond to the appeal made to it. The function of respiration was such a vital one that nature had provided a vast number of esoteric nerves, running to all parts of the body, through which respiratory efforts might be induced when the ordinary stimulus to the medulla oblongata was insufficient.

At the conclusion of the discussion on Dr. Flint's paper, Dr. Henry G. Piffard made some remarks on "*The Use of Certain Triturations*," the aim of which was to show that some of the decimal and centesimal triturations of medicines (made with wine and ninety-nine parts of sugar of milk respectively) which are used by the homœopaths really constitute an excellent method of giving some remedies, and that there was no reason why they should not be adopted by the regular profession. The experiments which he has made have been principally with preparations of mercury and arsenic, and he has been very much pleased with the results obtained. It has been proved beyond doubt, said he, that solids are absorbed, and it is reasonable to suppose (as has been substantiated by experiment) that the more finely subdivided a substance is the more readily will it be absorbed.

Dr. Piffard exhibited five specimens of *hydrargyrum cum creta*, obtained from different first-class druggists in this city, and no two of them were alike in appearance, either to the naked eye or under the microscope, while the *mercurius vivus* (the decimal trituration of mercury) employed by the homœopaths was uniformly the same. Some of the preparations of mercury, like the bichloride and biniodide, act as irritants to the gastric mucous membrane, and often have to be given up on that account; but he has found that when given in a minutely divided form they are so rapidly absorbed that there is little time allowed for producing this effect. The chief advantages of giving appropriate medicines

in the form of triturations seemed to be their greater palatability, the smaller dose required, and their more ready absorption; and he would recommend the more poisonous agents, such as aconitia, strychnia, arsenic, and atropia, to be given in the centesimal trituration.

Dr. John C. Peters has just presented to the Academy his entire library on the subject of Cholera, which is very large and altogether unique, in this country at least, containing, as it does, in addition to medical works on the disease, a considerable number of volumes of travels which have a bearing on its habitat, or describe the peculiar manners and customs of the natives of the countries it is apt to infest.

At the meeting of the Medical Journal Association, November 2, Dr. V. P. Gibney read a carefully-considered paper on "*The Medical Profession as related to the Medical Charity Abuse*," in which he suggested a number of plans for the abatement of the latter; but most of them presented no features of novelty, and those that did so seemed rather impracticable. At the meeting of November 16, Dr. James R. Leaming read a paper on "*The Physical Signs of Interpleural Pathology*," which has attracted a good deal of attention. He stated that in 1870 he had read a paper on "*Pleuritis*" before the Academy of Medicine, in which he presented his present views on the subject in a crude and imperfect manner, and that in the discussion which followed it, Prof. Flint gave it as his opinion that there were no certain signs by which we might recognize adhesions and thickening of the pleuræ and that were pathognomonic of these conditions. To this opinion all the prominent teachers in this department of medicine, except Walsh, subscribed, and he himself had concurred in it until about two years ago, when he was led to change his views by a case which occurred at St. Luke's Hospital. It was one in which circumscribed pleuritis with adhesions was diagnosed on the left side, with phthisis following the absorption of pus in the right lung; but the autopsy revealed that the structure of the latter was entirely healthy, though the pleura was everywhere thickened and adherent. From this case he was led to believe that inflammation of the pleuræ and its results gave rise to all the signs which have been hitherto regarded as characteristic of pathological conditions of the lungs themselves, and his subsequent experience has confirmed this opinion. He then related three cases in proof of it. In the first, the so-called mucous râles were heard during life, but the autopsy showed that the lung was completely consolidated, and that these had been produced by moist adhesions of the pleura. In the second, subcrepitant râles were heard after perfect consolidation of the lung had taken place, as revealed by the autopsy; and in the third case subcrepitant râles remained after a pneumonia which had been present had entirely cleared up. Dr. Leaming said that these were typical cases, and not rare, and regarded them as positive proof of the correctness of his peculiar views: so that there was a radical defect in the teaching handed down from teacher to pupil since the days of Laennec. He then went on to relate a large number of other cases, in order to illustrate different points. In one there was great dyspnœa, as well as displacement of the heart, with the production of an intra-ventricular murmur, produced by plastic exudations. In another this exudation was detected the moment it occurred, for râles were heard at the apex of the lung in the evening which were not present in the morning. Death took place suddenly from aortic aneurism, and this was verified by the autopsy. In another, soft, tearing râles, due to the same cause, were heard at the apex, the patient having been induced to seek medical advice early on account of a severe hemorrhage; and a complete cure was obtained by hygienic means. The patient, a young man, was advised to set out on a pedestrian expedition, and after walking the most of the way to Richmond and back there was not a trace of the plastic exudation left. Hæmoptysis was very apt to occur, either immediately or in three or four weeks; and he regarded the vast majority of cases of hemorrhage from the lung as due to plastic exudation. The nutrient arteries, which have no returning veins, become greatly engorged and cause undue pressure upon the bronchial vessels: so that the hæmoptysis thus acts as a safety-valve. In another case, in which death took place from hemorrhage resulting from the rupture of a large vessel into a caseous cavity, phthisis had not been suspected until after death, its physical signs being completely hidden by the enormous thickening of the pleura. In another, that of the late Commodore Vanderbilt, attacks of great dyspnœa were caused by pleuritic adhesions to the pericardium; and in connection with it he remarked that the so-called "cog-wheel" rhonchus and respiration were due to such adhesions. In conclusion, he spoke of the great importance of making an early diagnosis in cases of pleural exudation, in order that it may be completely removed and the danger of future phthisis thus avoided. He had obeyed the Baconian maxim of considering a matter seven years before committing one's self fully upon it, and he had now returned to the subject encompassed by a cloud of witnesses.

At the November meeting of the New York Public Health Association, Dr. Allan McLane Hamilton read a paper on "*Metallic Poisoning from a Sanitary Stand-Point*," in which he maintained that in general the danger of contamination of the system by lead was greatly exaggerated. In the course of his investigations he had examined 1500 printers, and was not able to find any evil results arising from

the constant contact with lead, except in the case of two men who were in the habit of putting type in their mouths. There was ordinarily little danger from drinking water that had run through lead pipe, and most of the trouble in this connection that has been noticed in New York has arisen from the fact that water has been allowed to stand in lead-lined tanks at the tops of houses. Richardson's experiments had proven conclusively that the poisonous salts of lead were not volatile; and hence the supposed injuriousness of sleeping in newly-painted rooms was attributable either to the imagination or could be traced to some other cause than lead-poisoning. During a long series of years the number of deaths traceable to lead in this city has been only 228. The danger from the use of popular hair-dyes, however, was well founded, and the evil results arising from them had been proven beyond any doubt. He thought that the danger from arsenical poisoning, as, for instance, by means of wall-papers, had been also greatly overrated; though he had known local trouble to arise from the wearing of cheap colored stockings in which arsenic entered into the dye used; and he thought that the sale of such active poisons as Paris green should be much more restricted than it is at present. Dr. Hamilton was inclined to think that there was much greater danger to the public of being poisoned by copper than by either lead or arsenic, and recited instances of copper-poisoning by soda-water pipes, and by the use of cheap spoons and forks, where the plating had worn off and left the copper beneath exposed; as well as directly by copper cooking-utensils, and the coloring-matter of various pickles and canned vegetables.

Dr. T. G. Thomas delivered the anniversary address at the annual meeting of the Academy of Medicine, his subject being "The Influences which are elevating Medicine to the Position of a Science."

P. BRYNBERG PORTER.

CHAMBERSBURG, PA, Nov. 5, 1877.

TO THE EDITOR OF THE PHILA. MEDICAL TIMES.

DEAR SIR,—Your article in No. 259, vol. viii., of the *Philadelphia Medical Times*, on the rational *treatment of dysentery*, has greatly interested me. And whilst I fully endorse your first proposition as to the possible inception of the two forms of the disease, acting on the principle of "proving all things and holding fast to that which is good," I cannot abandon two methods of treatment of said disease, which I will mention, for the *very* rational one suggested by you, without establishing beyond a doubt its great superiority over either; for the one great reason that in private practice yours is not so easy of administration. Seventeen years ago, some one recommended, in one of the medical journals, the use of a cathartic that would act on the entire length of the alimentary canal,—one that would stimulate the liver, so as to secure the effect of the newly-secreted bile on the inflamed mucous membrane, and also by its action on the lower portions of the tract remove any matters that might be morbific agents. This was to be followed by an often-repeated appropriate dose of laudanum. For an adult he prescribed hydrarg. chlor. mite, gr. viij, pulv. aloes, gr. x, pulv. rhei, gr. xii, to be taken at one dose, and, after *two* free evacuations, tinct. opii gtt. x to be given *every hour* until all disposition to go to stool shall cease. At the time of reading the article I had a case on hand, Samuel M., aged about 80 years, who for about a week had been passing frequent bloody mucous stools, with very great tenesmus. It required some little deliberation in my mind before I could bring myself to venture upon what I then considered heroic treatment in the case of one so old as my patient. But, being fully persuaded that the disease would gain the mastery, I concluded to take the chances, or, rather, let the patient take the chances. He informed me that he knew his case was a very serious one, for his former physician had told him that for years he had been suffering from a "*diaronic*" diarrhœa, and I could not persuade him that the doctor had said "chronic" instead of "diaronic." I succeeded, however, in establishing his full confidence in the remedy that I was about to administer; and its action could not have been more satisfactory. Instead of the blood and mucus, two very large discharges of fecal matter were produced, and not more than two or three ten-drop doses of laudanum were required to complete the cure. In a few days from this time I was called to see Samuel G., aged about 55, a man of very restless disposition, who could not be kept in the recumbent position. His discharges were similar to those in the above case, and were accompanied with very severe tenesmus. The above-mentioned combination was administered, followed by two or three doses of the tinct. opii, and on the following day when I inquired of him as to his condition his reply was, "I am all right; it *stinks* again." Dysenteric stools ceased as in the other case, and he had a rapid recovery. For a number of years I pursued the above treatment, modifying it according to age and circumstances, with very gratifying results; but, as you suggest, "our experience with other portions of the body would teach us that different forms and stages of dysentery require variety in the character and strength of application:" so I was induced to try another remedy, proposed by some one, I think, in the columns of the *Philadelphia Medical Times*. This prescription was, for an adult, one-quarter of a grain of muriate of morphia combined with four or five grains of common table salt, to be repeated every three hours until the dysenteric symptoms have dis-

appeared. This mixture, modified to suit the age of the patient, has been prescribed by me in a very large number of cases with uniformly good results. Its happy effect has, if any difference can be noticed, been found in those cases of dysentery that are so apt to follow the diarrhœa of infants; the one-twentieth of a grain of morphia with two grains of chloride of sodium every three hours will afford the most pleasing results.

We country doctors have access to a natural diet-drink, if I may strain a point in the application of a word, in the substance known as "buttermilk," which appears to have almost a specific action in all bowel troubles, and where patients can be induced to use it freely, to the exclusion of all solid food, the action of medicinal agents is very much favored.

Pardon me if my suggestions appear in the least to militate against the treatment proposed in your article and which you desire to have further investigated. On the other hand, I am ready to give it my full endorsement, and feel satisfied that where complete control of the patient can be had, as in a hospital, it is pregnant with much good. But that my medical brethren, especially that class who have attained to that higher degree of intelligence that prompts them to subscribe for the *Philadelphia Medical Times* and kindred works relating to the science of medicine, may be induced to test the remedies that have displayed such marvellous powers in my hands, I respectfully submit the above. Experience is often our best teacher, even when it runs counter to chemical laws and physiological teachings. J. S. Suesserott, M.D.

REVIEWS AND BOOK NOTICES.

Cyclopædia of the Practice of Medicine. Edited by Dr. H. von Ziemssen. Vol. XVI. Diseases of the Locomotive Apparatus, and General Anomalies of Nutrition. By H. Senator, Prof. E. Seitz, Prof. H. Immermann, and Dr. Birch-Hirschfeld.

As this great work gradually approaches completion it impresses one more and more by its thoroughness and detail, and especially by the wide eclecticism manifested by the various writers in culling material from all sources, native and foreign, as well as the careful criticism which rids the subject-matter in many places of much rubbish embalmed in successive text-books for generations. Complaint has sometimes been made of the meagre therapeutics of Ziemssen's "Cyclopædia;" but in a work of such scope and permanent importance this seems a venial defect. Like the skilful portrait-painter, who clothes his subject in nebulous drapery that the eye of succeeding ages may not be distracted from the features by some eccentricity of antique fashion, the writers of this work seem to have subordinated the "practical" to the scientific, therapeutics to the delineation of disease, doubtless to the occasional disappointment of the diligent gleaner of new recipes. A score of years hence, the therapeutics of today will be obsolete; while accurate description of disease will never be out of date.

The present volume is opened by an account of rheumatism in its various forms, gout, arthritis deformans, rickets, and malacosteon, by Senator. Seitz contributes an unsatisfactory article on slight disorders caused by catching cold; Immermann, an account of general disorders of nutrition, including anæmia, chlorosis, and progressive pernicious anæmia, also an article on corpulence. Birch-Hirschfeld's article on scrofulosis and affections of the lymphatic glands in general possesses great interest. Under this general heading is included an account of malignant lymphoma, lympho-sarcoma. The volume closes with two articles by Senator on diabetes mellitus and diabetes insipidus. The translators of this volume—Drs. E. Buchanan Baxter, Godfrey Aigner, Frank P. Foster, and Henry P. Bowditch—have done their work well, and the editor of the American edition, Dr. Albert H. Buck, has performed his toilsome labor with characteristic conscientiousness. x.

The Morphology of the Skull. By W. K. Parker, F.R.S., Hunterian Professor at the Royal College of Surgeons, and G. T. Bettany, M.A., B.Sc., etc. London, Macmillan & Co., 1877. Pp. 368.

This volume is an abridgment of a number of memoirs on the development of the skull, both human and comparative. The latter feature very largely predominates, since out of eight chapters a portion of one only is given to the human variety. To those who desire to have a knowledge of the wonderful complexity of the skull this book is a veritable *vade-mecum*. It is expressly designed for students, is abundantly and well illustrated, and is furnished with a copious index. The principal author, Prof. W. K. Parker, is the first living writer on this subject. He has devoted many years to its perfection, and the scientific reader must acknowledge an indebtedness to this distinguished physician and savant in preparing this epitome of his larger memoirs.

The Ear. By Charles H. Burnett, A.M., M.D. Philadelphia, H. C. Lea, 1877.

This is a treatise for medical students and practitioners, covering a field that has only lately been deeply and properly cultivated. Its aim is to be comprehensive as to its subject, and so thorough and accurate in the diagnosis and treatment as adequately to meet the wants of the specialist as well as of the general practitioner. It is one of the

most complete works on the ear that has come under our notice; and the division and subdivision of its contents into different parts representing those of the ear is well adapted to present explicitness in demonstrating the anatomy, physiology, and pathology of the separate parts of this organ.

Part I., representing the anatomical and physiological branches, is subdivided into sections, corresponding to the external, the middle, and the internal parts of the ear, and occupies 162 pages. In this space not only is the anatomy well presented, but the physiological functions are clearly and concisely explained. The work is remarkably rich and most valuable in this respect, not only giving the author's own researches and discoveries, but good judgment has been shown in the compilation of all the latest researches of the well-known authorities in America and Europe. We have for some time been having contributions in this department of the ear in the various medical journals of the world from many well-known investigators, but this is the first time that a digest of their work has been made in this country and presented to the general profession who have not been able to follow and keep up with the literature upon the subject. This having been written more especially for the general practitioner, the mathematical parts in the physiology have been left out; although some of the more interesting, easily-explained, and practical formulæ in physiological ototrics might have been introduced with propriety as a basis for those who may desire to go further into the study of this branch. However, as it is, this is one of the most attractive parts of the book, although *Part II.*, occupying the rest of the book of 444 pages, on the diseases and their treatment, is so rich in its facts and resources as well as practical in its diagnosis and treatment that it is indispensable to the general profession.

A few colored lithographic plates of the tympanic membrane in normal and morbid conditions, after Politzer, for the assistance of those who have not the advantage of the clinics in the large cities, would have been an addition to the numerous illustrations. An elaborate review of this work would be impossible in the short space allotted therefor, as the whole treatise is so well written, and contains so much that is new and interesting, that extracts could not be made in length enough to do credit to the author. In short, every subject in relation to the ear is practically detailed in its anatomy, physiology, pathology, and treatment; and the whole is a great acquisition to the catalogue of text-books for our profession. And, as a good book is always welcome, it is hardly possible that this one before us can fail to become popular among the students and profession for whom it is intended. K.

Lectures on Fever. By Alfred A. Loomis. Wm. Wood & Co., New York, 1877.

This is a book of about four hundred pages of large print, which is stated in the preface to be a report of Prof. Loomis's lectures at the University of the City of New York.

Viewed from its own stand-point, the work is a good one: in a few words it may be characterized as a well-written series of lectures, containing very little that is novel, but representing very judiciously the practice of the day, and excellently well adapted to the use of students and not well-read practitioners of medicine. Higher than this the efforts of the writer do not seem to aspire; and the practitioner who is seeking a detailed chart, by which he shall guide himself amidst the individual vagaries of febrile diseases, will be disappointed if he expects the book before us to serve his purposes. There are some statements in regard to the treatment of disease which are important as the expression of the author's personal experience. We are glad to see that he appreciates the value of antipyretic treatment by cold baths, packings, etc., in typhoid fever, and, on account of this appreciation, are exceedingly interested to know that in his experience, as in that of Lebert, the use of cold applications has seemed to be of no avail in relapsing fever, on account of the great tendency of the temperature to rise at once when the patient is taken out of the bath. Space to notice this volume here in detail is wanting; but we think its scope has been sufficiently indicated. It can scarcely be credited as a very valuable addition to medical literature, but, no doubt, will find favor with a class of readers.

GLEANINGS FROM EXCHANGES.

The Cold-Sound (Psychrophor), a New Instrument for Treating Pollutions, Spermatorrhœa, and Chronic Gonorrhœa (*The Medical Record*, September 22, 1877).—A little over a year ago, Dr. Winternitz, of Vienna, designed an instrument, by means of which he secures the advantages of the mechanical irritation of the urethral mucous membrane by the metallic sound, combined with the anæsthetic and tonic influence of cold. It consists of a double-current catheter without eyes, the two canals communicating with each other near the point of the instrument. The instrument is introduced into the urethra until its point has passed the pars prostatica, and it is then attached by rubber tubing to a reservoir containing water at the desired temperature. On turning a stop-cock, the water flows into one canal and out through the other, whence it is conducted away by another piece of tubing. In this way the caput gallinaginis and the entire urethral mucous membrane are exposed

to the mechanical action of pressure and to the sedative action of cold. The success obtained by Dr. Winternitz by the use of this instrument was so encouraging from the very beginning, that he has employed it constantly for over a year.

He has treated with it twenty-two cases of pollution. Of these, two did not return after the first application; one was improved at first, but soon became as bad as before, and the treatment was discontinued after the cold-sound had been used sixty-five times; twelve are still under observation, and have been so much improved by the treatment that the pollutions occur very rarely and the secondary symptoms, hypochondria, etc., have entirely disappeared. In three cases the improvement was marked, when the patients withdrew from observation; in two others the pollutions became less frequent, but the secondary symptoms remained unchanged. The two remaining cases are described in detail. In one the patient was a Russian officer, forty-six years of age, and the affection was due to excessive venery. The pollutions occurred regularly in the night after coitus, and recurred two or three times a week when the patient was continent. The cold-sound was used daily for ten minutes with water at 59° F.; during its employment the patient experienced a sensation of pleasant coolness, and the relaxed scrotum contracted energetically. Some difficulty was experienced in removing the instrument. During the four weeks that the treatment was continued, there was only one pollution. The erections became more complete. In the second case the pollutions were frequent, and there were symptoms of excessive spinal irritation. The first introduction of the instrument caused great pain, and brought on an hysterical fit, but these symptoms disappeared after the water (59° F.) had flowed through the sound for five minutes. The treatment was continued daily for three weeks, when the patient was discharged cured. He had not had a single pollution from the time the treatment was begun.

Dr. Winternitz has had sounds made corresponding in size to Nos. 18, 20, 22, and 24. At the first sitting he sometimes uses water at a temperature of 64° or even 66° F., and at a later period sometimes goes as low as 54½° F. Besides the above, he has treated nine cases of spermatorrhœa with the cold-sound. In four of these cases he obtained very favorable results; two cases were very markedly improved, while in the other three the treatment was without special results. In the cases of spermatorrhœa, as well as in those of pollution, in which the treatment proved successful, general relaxation of the genitals and loss of muscular tone in the scrotum were marked symptoms. The cold-sound was also used in five cases of too rapid ejaculation during coitus, and in two cases of obstinate chronic gonorrhœa. In the former its use was followed by at least temporary improvement, and both of the latter, one of which had lasted three years and the other six months, were cured.

Hereditary Heart Disease (*The Lancet*, September 29, 1877).—It is not often that an hereditary influence in the occurrence of heart disease can be distinctly traced to any wide extent, although it is often suspected. A remarkable example of such a transmission is recorded by Dr. Rezek, of Töplitz, in the *Wiener Med. Zeitung*. Of the pair from whom the family in question is descended there is reason to believe that the mother suffered from heart disease. They left two sons and five daughters. Of the sons, one is still alive, and suffers from heart disease; the other is dead, and suffered before death from dropsy. His son, moreover, suffers from some cardiac affection. The other son, still alive, has suffered for some years from heart disease, but his children are healthy. Of the three daughters, one died from heart disease, and of her five children all are healthy, but one has married and has had three children, two of whom are cyanotic. The second daughter of the original pair is still alive, and has suffered for many years from cardiac disturbances similar to those of her brother. Of her children, one daughter has died of heart disease, and another has married and has borne a child with well-marked congenital heart disease and cyanosis. The third daughter of the original pair has not suffered from heart disease. Care has apparently been taken in each instance to substantiate the diagnosis.

When not to give Iron (*The Medical Press and Circular*, October 3, 1877).—Dr. Milner Fothergill has contributed a few very practical remarks on the contra-indications for giving this drug. As long, he says, as there is rapidity of pulse combined with rise of temperature, so long must iron be withheld in the treatment of acute disease. As long, moreover, as the tongue is thickly coated, or red and irritable, it is as well to withhold chalybeates altogether. This is particularly true of phthisis: no matter what the other indications are, it is useless, and sometimes worse than useless, to give it unless the tongue be clean without irritability.

It may be laid down as a general rule that this toleration of iron diminishes as the age increases. Young children take iron well, and it is often well borne by them in conditions which in the adult distinctly forbid its use.

There is one condition where iron is absolutely forbidden, and that is the condition known as biliousness. As long as there is a foul tongue, a bad taste in the mouth, and fulness of the liver, with disturbances of the alimentary canal, iron is not only of no service, but positively does harm. Sir Joseph Fayrer's Indian experience is in full accord

with this expression of opinion. In speaking of the treatment of hepatic congestion accompanied by anæmia, he lays stress upon the resort to purgatives and vegetable tonics and the avoidance of iron until the biliary congestion is removed. "When the portal circulation is relieved some preparation of iron may be useful."

When given in large doses iron always blackens the stools, but if given in moderate doses and well assimilated this blackening is not so marked. The color of the stools, then, may be utilized as an indicator as to how far chalybeates are assimilated and are likely to be useful.

There are two different states found in women where iron is either totally contra-indicated or to be given with great caution. The first is a condition of amenorrhœa in florid, plethoric persons. The other is the opposite condition of menorrhagia in certain females. There are cases of menorrhagia associated with pallor and debility, where the usual compound of iron and extract of ergot is not so useful as a non-chalybeate treatment. In these cases it is not any imperfection in the process of blood-manufacture which is to be remedied, for the blood is made rapidly and quickly, only to be lost at each menstrual period. It is here desirable rather to limit the rapidity of the blood-formation, so that when the severe vascular turgescence of the menstrual period comes, it will not find the blood-vessels too distended with blood. This will lead to diminished catamenial loss, and so the blood-waste will be economized. According to the experience of Dr. Brown Séquard and Dr. Hughlings Jackson, iron does not suit epileptics. It increases the tendency to fits. It may improve the general condition, but it aggravates the epilepsy.

Hypertrophy of the Breast (*The Clinic*, October 13, 1877).—A prostitute, 23 years old, observed after a blow upon the left breast that it gradually increased in volume until finally it attained the size of the head of an adult, so that she was compelled to support it by a bandage passed around the neck.

The transverse diameter was twenty-seven centimetres; the vertical diameter was twenty-four centimetres; the pedicle was thirteen, the circumference was seventy-eight centimetres. The nipple had disappeared; the skin of the mamma was thin and movable upon the glandular tissue. The tumor itself could be moved upon the muscles of the thorax.

Under the skin no fat could be detected; nevertheless the glandular structure was lumpy, divided into separate parts, and enlarged; so that from the symptoms hypertrophy could be positively diagnosticated.

As the individual was pregnant, the hope was entertained that the functional activity of the organs implicated would cause a diminution of the tumor, and an operation was deferred. The milk was lost in the breasts, and at the end of pregnancy the left breast had increased in size. The patient would not permit an operation after delivery. Similar cases have often been described, and of still greater dimensions.

The above-described case is of importance inasmuch as it confirms the view of Sebert that an injury always causes hypertrophy of the breast, and negatives the observations of others, who affirm, from the connection between the breast and uterus, that pregnancy and other extraordinary excitations of the genital organs are remedial to hypertrophy of the breast.

In this case pregnancy had no influence upon the hypertrophy, nor did the patient's mode of life, who continued her unfortunate calling until within a short time of her delivery.

In contrast with the above, a case is quoted from the *Medical Record*, of a young girl aged 16½ years, who had an extraordinary hypertrophy of the mammæ, which remained stationary for many years, but began to decrease immediately after marriage, and finally disappeared.

Treatment of Gonorrhœal Orchitis by Iodoform (*The Clinic*, October 13, 1877).—Dr. Julian Alvarez publishes four cases, from which he draws the following conclusions:

1st. Iodoform calms the pain which accompanies gonorrhœal orchitis better than any other agent. The effect is brought about in one or two hours.

2d. Iodoform has a manifest resolvent action, and has the advantage over mercurial ointment, which is usually employed, of never giving rise to dangerous symptoms when absorbed.

3d. Iodoform shortens very decidedly the duration of the disease, and checks the induration of the organ.

4th. An ointment is used containing thirty grammes of lard to two to four grammes of iodoform, according to the intensity of the inflammation.

Neuralgia in Connection with Troubles of the Accommodation of the Eye (*The Medical Record*, October 13, 1877).—Dr. George T. Stevens details a number of cases of neuralgia, from a consideration of which he draws the following conclusions:

1st. That among the centripetal influences which generate neuralgia, the irritability arising from a perplexity or exhaustion of nerves engaged in the function of accommodation of the eye must be regarded as by far the most frequent and important.

2d. That where a family tendency to neurotic affections, including neuralgia, is found, we may generally conclude that the inherited tendency is transmitted in the form of the eye.

3d. That many inveterate cases of chronic

neuralgia, not amenable to other forms of treatment, readily yield to the simple process of relieving the eye from irritation resulting from difficult accommodation.

MISCELLANY.

THE MALTHUSIAN LEAGUE.—A society has been established to carry out the modern phase of the Malthusian doctrines. The objects of this society are thus epitomized:

"1. To agitate for the abolition of all penalties on the public discussion of the population question, and to obtain such a statutory definition as shall render it impossible, in the future, to bring such discussions within the scope of the common law as a misdemeanor.

"2. To spread among the people, by all practicable means, a knowledge of the law of population, of its consequences, and of its bearing upon human conduct and morals."

There are no plutocratic checks to joining the League, "the condition of membership being the payment of an entrance fee of 6*d*. (which shall be taken to imply adhesion to the rules of the League), an annual subscription of 1*s*., or, to constitute life-membership, a single payment of one guinea." Dr. C. R. Drysdale has been elected the first president, and has issued a very able tract.—*Medical Examiner.*

MEDICAL SPECIMENS.—For rapidly preparing bones and ligaments for museum purposes, Dr. L. Frederick recommends (*Scientific American*) that, after the soft parts have been taken away, except the ligaments, the preparation should be washed in water dehydrated by alcohol, and then plunged into essence of turpentine. After two or three days' maceration in this fluid, the skeleton is placed in the position in which it is designed to keep it, and dried in the air. In drying, the bones and ligaments become beautifully white, and the whiteness increases as time passes. The same process gives less satisfactory results for muscles. For a parenchymatous organ, on removing it from the turpentine, Dr. Frederick plunges it into melted wax or paraffin during half an hour or two hours, till the bubbles of turpentine have ceased to pass off. When withdrawn and cooled, the piece resembles a wax model, but it is far superior in its minor details; the color of the organ persists.

EXPERIMENTS WITH THE TAPEWORM.—Some doubt has hitherto existed concerning the identity of the tapeworm in men and in pigs. To solve the question, M. Redan made several experiments on himself, the results of which M. Milne Edwards communicated to the Academy of Sciences. Having found some cysticerci in the body of a subject at one of the Lyons dissecting-rooms, he swallowed four portions of the worm in warm milk, and gave several other cysticerci from the same subject to a number of pigs and puppy-dogs. The former animals died of enteritis; the dogs, when killed and examined, presented no trace of the entozoa. But three months afterwards M. Redan discovered in his stools the proglottis and ova of a tænium, which were soon followed by the expulsion of a complete section. M. Redan, therefore, concludes that tapeworm may exist in man without the ingestion of a transitory form derived from pork.—*Medical Examiner.*

NOTES AND QUERIES.

1630 ARCH ST., PHILADELPHIA, Nov. 24, 1877.

DR. H. C. WOOD:

DEAR SIR,—In my paper entitled "On Some Forms of Inflammatory Diseases of the Eye being Caused by Defects in Refraction and Accommodation," in the Transactions of the Medical Society of the State of Pennsylvania for 1877, just issued, I find the following typographical errors requiring correction:

Page 8, 20th line from top, should be +36 instead of +35.
Page 10, 7th line from top, Pterygium instead of Pterygia.
Page 12, 10th line from top, a *t* is wanting in astigmatism.
Page 15, 9th line from top, $+48 \bigcirc +6_{0c}$, 180°, instead of $+4 \bigcirc +6_{0c}$.
Page 15, 18th line from top, $-16-3_{0c}$, 105°, instead of $-6-3_{0c}$, 105°.
Page 15, bottom line, $-16 \bigcirc -4_{8c}$, 180°, instead of $-16 \bigcirc 4_{8c}$, 180°.

Please be kind enough to insert this in your next issue of the *Medical Times*, and oblige,

Yours very respectfully,
P. D. KEYSER.

OFFICIAL LIST

OF CHANGES OF STATIONS AND DUTIES OF OFFICERS OF THE MEDICAL DEPARTMENT U.S. ARMY FROM NOVEMBER 18, 1877, TO DECEMBER 1, 1877.

ALEXANDER, R. H., MAJOR AND SURGEON.—When relieved from duty as Post-Surgeon at Fort Vancouver, W. T., to comply with par. 2, S. O. 220, A. G. O., c. s. S. O. 167, Department of the Columbia, November 13, 1877.

ALEXANDER, C. T., MAJOR AND SURGEON.—Assigned to duty as Post-Surgeon at Fort Vancouver, W. T. S. O. 167, c. s., Department of the Columbia.

CLEMENTS, B. A., MAJOR AND SURGEON.—Assigned to duty at Camp Douglas, U. T. S. O. 131, Department of the Platte, November 14, 1877.

NOTSON, W. M., MAJOR AND SURGEON.—Assigned to duty at Fort McKinney, Wy. T. S. O. 135, Department of the Platte, November 24, 1877.

GIBSON, J. R., MAJOR AND SURGEON.—Assigned to duty at Fort D. A. Russell, Wy. T. S. O. 132, Department of the Platte, November 16, 1877.

KOERPER, E. A., CAPTAIN AND ASSISTANT-SURGEON.—Assigned to duty at Fort Sanders, Wy. T. S. O. 133, Department of the Platte, November 17, 1877.

MUNN, C. E., CAPTAIN AND ASSISTANT-SURGEON.—Assigned to duty at Sidney Barracks, Neb. S. O. 132, c. s., Department of the Platte.

COWDREY, S. G., CAPTAIN AND ASSISTANT-SURGEON.—Assigned to duty at Fort Cameron, U. T. S. O. 135, c. s., Department of the Platte.

WINNE, C. K., FIRST LIEUTENANT AND ASSISTANT-SURGEON.—Assigned to duty at Fort McPherson, Neb. S. O. 132, c. s., Department of the Platte.

MOSELEY, E. B., FIRST LIEUTENANT AND ASSISTANT-SURGEON.—Assigned to duty at Camp Robinson, Neb. S. O. 132, c. s., Department of the Platte.

NEWLANDS, W. L., FIRST-LIEUTENANT AND ASSISTANT-SURGEON.—Assigned to duty at San Diego, Cal. S. O. 142, Division of the Pacific and Department of California, November 14, 1877.

CORBUSIER, W. H., FIRST-LIEUTENANT AND ASSISTANT-SURGEON.—Assigned to duty at Camp Sheridan, Neb S. O. 133, c. s., Department of the Platte.

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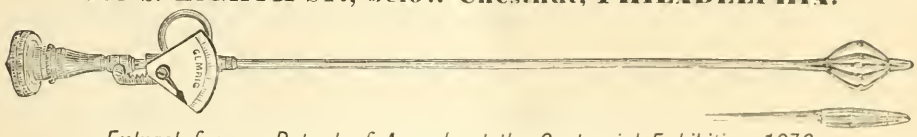

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